ERECTION PROCEDURE FOR THE

MODEL 32 BLUE STREAK LINOTYPE

MERGENTHALER LINOTYPE COMPANY
29 RYERSON STREET, BROOKLYN 5, N.Y.

• LINOTYPE •

AN INSTRUCTIVE BOOKLET
FOR THE ERECTION OF THE

MODEL 32
BLUE STREAK
LINOTYPE

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29 Ryerson Street, Brooklyn 5, N.Y.

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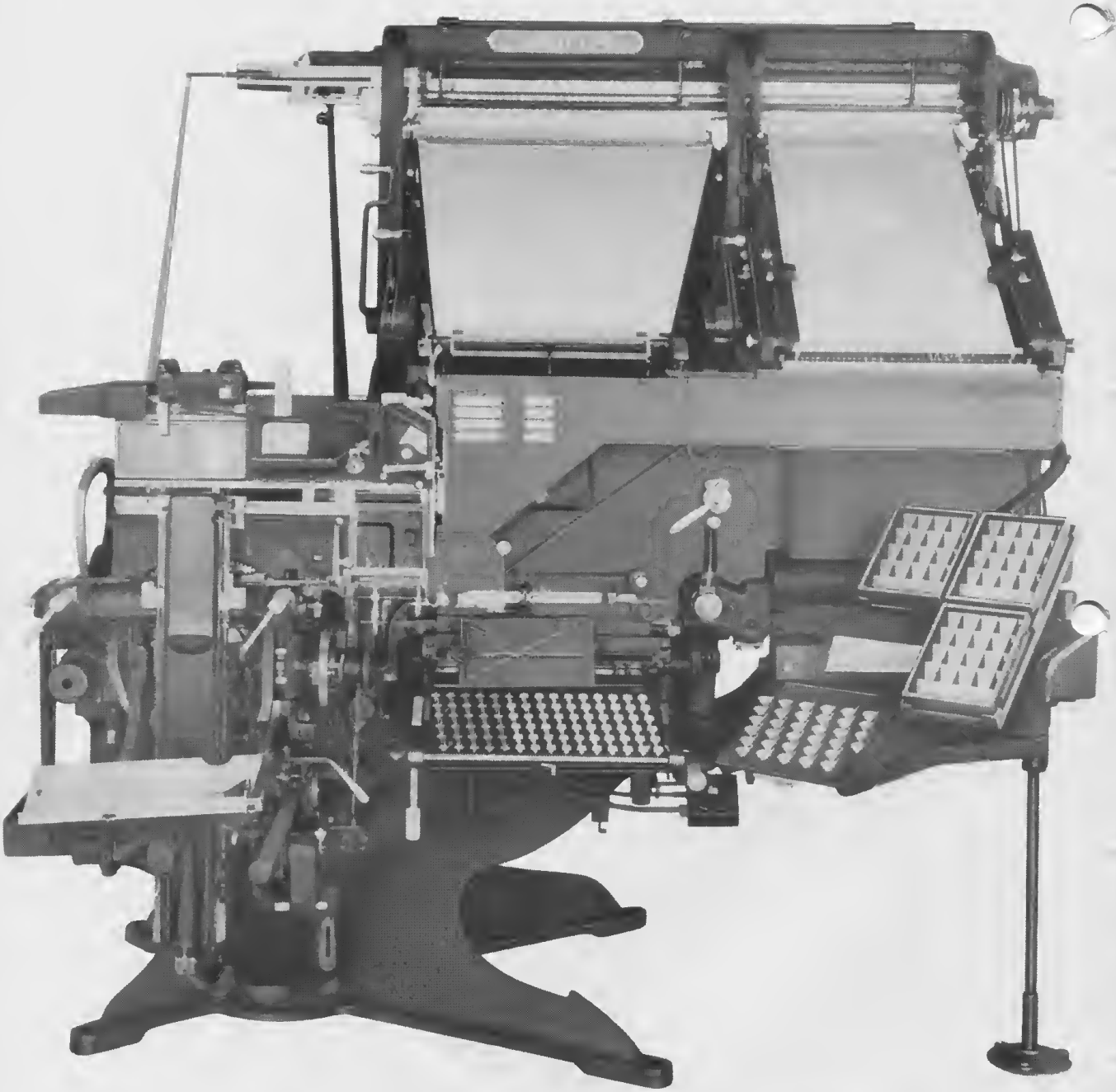
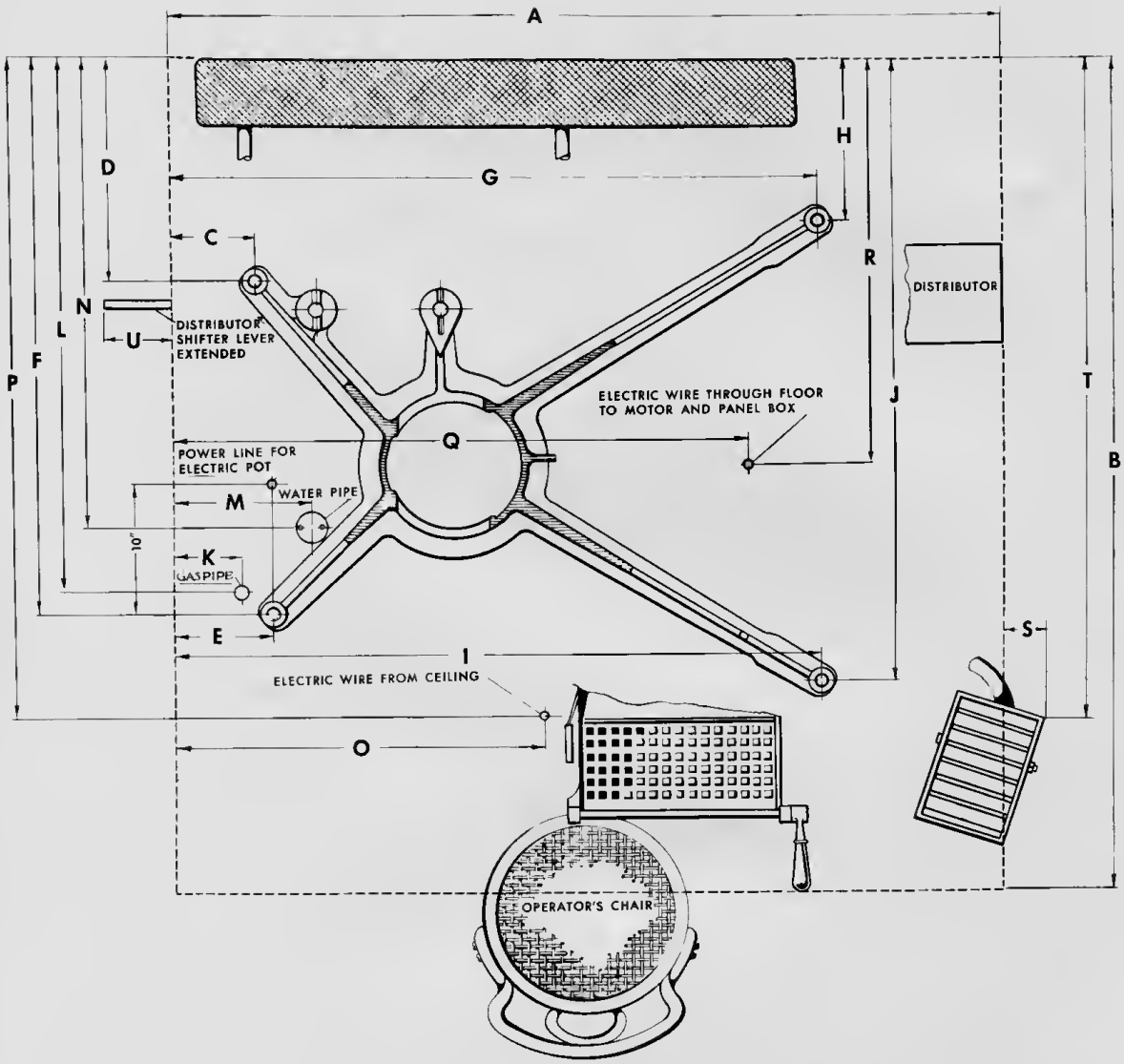


THE MODEL 32 LINOTYPE carries from one to four standard 90-channel magazines and from one to four 34-channel magazines. Although it is a single distributor machine, limited mixing can be accomplished by combining matrices from any main magazine with matrices from any auxiliary magazine in the same line.

It can accommodate from 4 point to normal-width 18 point in the main magazine and up to 60 point caps in the auxiliary. However, condensed faces up to 34 point will run in the main magazine. With a size range from the smallest to the largest faces, the Model 32 is an ideal machine for both text and display work. It is widely used for nearly every type of composition, including newspaper, magazine, catalog, and general job work.



Floor Plan Dimensions: A—81 inches; B—62 inches; C—6 inches; D—16¾ inches; E—7 inches; F—41½ inches; G—47¼ inches; H—12⅛ inches; I—47¼ inches; J—46⅞ inches; K—5 inches; L—41 inches; M—10 inches; N—34½ inches; O—27 inches; P—49 inches; Q—42¼ inches; R—29⅞ inches; U—5 inches; Height—79 inches.

Foreword

Each Linotype is completely erected in the factory and adjusted under actual operating conditions. When prepared for shipping, the Linotype is dismantled and carefully packed to avoid breakage and loss of factory adjustments due to shocks and jars of transportation handling. *In erecting the Linotype it is important that no adjustment be changed until certain that the original factory setting has been "lost."*

The Linotype is either "factory stripped," "stripped to base," or "stripped for overseas," according to the shipping distance, mode of transportation or clearance dimensions in the purchaser's plant. The dismantled parts are carefully sorted and associated assemblies are packed in the same crate for the convenience of the erector. On each crate there is a stenciled notation of the major assemblies contained therein. *The erection described in this booklet is for a "stripped to base" Linotype.*

This booklet has been prepared as a guide to the proper procedure of Linotype erection. In it is contained the correct sequence of operation for efficient precise erection.

While it is true that there are many possible methods of erection, it is also true that a divergence from the procedure prescribed herein will often result in difficult assembly, a considerable amount of readjustment or possible damage; the effect of each being an excessive time spent on the erection.

In some cases it may seem that there is an illogical or inconvenient sequence in certain phases of this procedure of erection. However, each step is taken for a definite reason and because of an important, if not always obvious relationship to other operations. As an example, the First Elevator Slide is not assembled to the Vise Frame until after the Face Plate has been applied to the machine because the Slide must be aligned with the Delivery Channel and Intermediate Channel. Similarly the Knife Block is not assembled to the Vise Frame until after checking "pull-up" and Ejector Blade alignment; and these checks should be made after the full weight of the Magazines and Distributor is on the machine. In both these cases it might seem convenient to apply the parts earlier than specified; however, as explained above, there are valid and important reasons for assembling them according to the prescribed order.

In preparing this booklet, we have endeavored to present the text in as clear, readable form as possible, omitting the unnecessary details which would be more apt to confuse than inform the reader. Accordingly there is

practically no mention of the many screws, bolts, nuts, springs, and other small parts used in the assembly. These parts will usually be found attached to a related part and their machine location will be obvious. In addition we have shortened and simplified part names, but only in those cases where there will be no resulting confusion.

This booklet covers the erection of the standard Linotype. Various other literature is available which provides detailed descriptions and adjustments of such special mechanisms as the Self-Quadder, Auto-Ejector Set, or Mohr Saw, and should be used in conjunction with this booklet when such extra equipment is included in a machine order.

The machine erection we describe is that of a Linotype equipped with Electric Pot. For information concerning Gas Pot application, see "Instructions to Linotype Operators and Machinists" the booklet which is furnished with each new machine. See this booklet also for detailed description of the machine application of the Emerson Geared Motor, the Knife Block adjustment, application of the Thermo-Blo Mold Cooler, adjustment of the Auto-Ejector Set and Electric Pot wiring information.

CAUTION

In order to use this booklet to the maximum advantage, it will be necessary to closely follow the text which establishes the chronological order of parts application. The illustrations provided herein are presented merely to serve as an aid in identifying parts discussed in the text and to indicate the relationship of associated assemblies. To obtain greater clarity and show parts unobstructed it was necessary to illustrate the machine equipped with parts and units out of the proper sequence and in some cases to show parts completely detached from the machine. Necessarily, therefore, since the illustrations do not represent actual erection stages, the erector must follow the text for proper sequence and use the illustrations as a reference only.

During erection all bearing surfaces should be cleaned of slushing oil; all shafts should be oiled as they are applied; and when grease cup connections are present, the bearings should be coated with grease.

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Erection Procedure

Place Base in position.

Set Electric Pot 7 adjacent to its assembled position in the machine as shown in (**Figs. 1 and 2**) and place Mouthpiece Temperature Control Box 7 (**Fig. 10**) in approximate location with the two control cables 4 and 5 (**Fig. 2**) behind left-hand front Column support boss 1. This is done at this time to avoid disconnecting the Control Box from the control cables as would be necessary if the Control Box were placed in position at the same time as the Pot is assembled to the machine.

Assemble Column and Magazine Elevating Shaft Bracket Support Bracket 15 (**Fig. 8**) to Base. Remove dowels from Distributor Bracket Support 17 (**Fig. 6**) and use them to locate Elevating Shaft Bracket Support Bracket on Base.

Assemble Spaceband Lever 17 (**Fig. 2**) and Shaft into lower holes in Column; add Collar 22 (**Fig. 1**) to rear end of Shaft.

Assemble Elevator Transfer Cam Roll Lever 27 (**Fig. 1**), Shaft and Spring Arm into top holes in Column; add Elevator Transfer Lever 18 (**Fig. 2**) to front end of Shaft.*

Assemble Delivery Lever 24 (**Fig. 2**), Shaft and Spring Arm into center holes in Column; add Delivery Lever Cam Roll Arm 24 (**Fig. 1**) to rear end of Shaft.*

Connect Elevator Transfer Lever to Spaceband Lever by means of Turnbuckle.

Assemble Cam Shaft Bracket (L.H.) 6 (**Fig. 1**) to Base.

Assemble Driving Shaft and Bearing 19 (**Fig. 1**) to Base; slip Cam Shaft Bracket (R.H.) 20 on Driving Shaft and assemble to Base.

Assemble two Grease Cups and Tubes 17 and 21 (**Fig. 1**) to Driving Shaft Bearings.

Assemble Automatic Stop Forked Lever 23 (**Fig. 1**) to Cam Shaft Bracket (R.H.).

**Do not loosen Screws in Elevator Transfer Cam Roll Lever or Delivery Lever as they are properly located at the factory.*

ASSEMBLE Vertical Starting Lever 25 (**Fig. 1**) to rear of Column.

ASSEMBLE Starting and Stopping Lever Bracket 30 (**Fig. 2**) to front of Column.

ASSEMBLE Starting and Stopping Lever 31 (**Fig. 2**), Connecting Rod 32 and Vise Automatic Stop Connecting Bar 33 to Bracket 30, and engage with Stud 10 in Automatic Stop Forked Lever.

ASSEMBLE Ejector Blade Controller Link Lift Guide 28 (**Fig. 2**) to Base; place Lift 26 in Guide and slip Roll over Stud in Lift.

ASSEMBLE Ejector Blade Controller Lever and Bracket 34 (**Fig. 2**) to Base, setting slotted end of Lever over Roll on Link Lift.

ASSEMBLE Justification Lever 2 (**Fig. 2**), Vise Closing Lever 39 (**Fig. 2**) and Shaft Sleeve by inserting Shaft 18 (**Fig. 1**) through lower bearings in Cam Shaft Brackets, setting Springs 12 and 16 into position. Nails 13 and 15 are for the purpose of holding Springs intact to facilitate assembling and should be kept in place until machine is fully assembled.

REMOVE Distributor Shifter Lever Spring Screw 5 (**Fig. 1**) from inside of Cam Shaft Bracket (L.H.) to facilitate assembly of Cams.

ASSEMBLE Cams to Cam Shaft Brackets as follows: assemble Friction Clutch 12 (**Fig. 6**) temporarily and set Driving Shaft so that Clutch Arm is horizontal or left-hand arm when facing Clutch is slightly below center. With this position of Clutch Arm, set Cams in place so that they are in normal position, that is, with Automatic Stopping Pawl on Vertical Stopping Lever.

ASSEMBLE Delivery Lever Spring and Elevator Transfer Lever Spring to Hooks inside top of Column and to Spring Arms.

REPLACE Distributor Shifter Lever Spring Screw 5 (**Fig. 1**) to Cam Shaft Bracket (L.H.) (removed to provide clearance for Cams).

ASSEMBLE Cam Shaft Bracket Cap 26 (**Fig. 1**) to Bracket (R.H.).

INSERT Tie Rod 28 (**Fig. 1**) through Cam Shaft Bracket Cap and screw into Column, bringing up by fingers only to avoid introducing strains.

ASSEMBLE Vise Locking Stud (R.H.) 23 (**Fig. 2**) to Column. See that Washers are properly placed between Stud shoulder and Column.

ASSEMBLE Vise Locking Screws 25 and 27 (**Fig. 5**) to Vise.

ASSEMBLE Vise 36 (**Fig. 2**) by inserting Vise Frame Shaft through front bearings of Base and bearings of Vise Frame. See that Pot Leg Bushings 37 are put in as marked (L.H. and R.H.) with oil holes to the front.

ASSEMBLE Pot Lever 8 (**Fig. 1**) to Shaft on rear top of Pot and to lower lug of Pot.

ASSEMBLE Pot to Machine. Do not loosen rear or top Pot Leg Adjusting

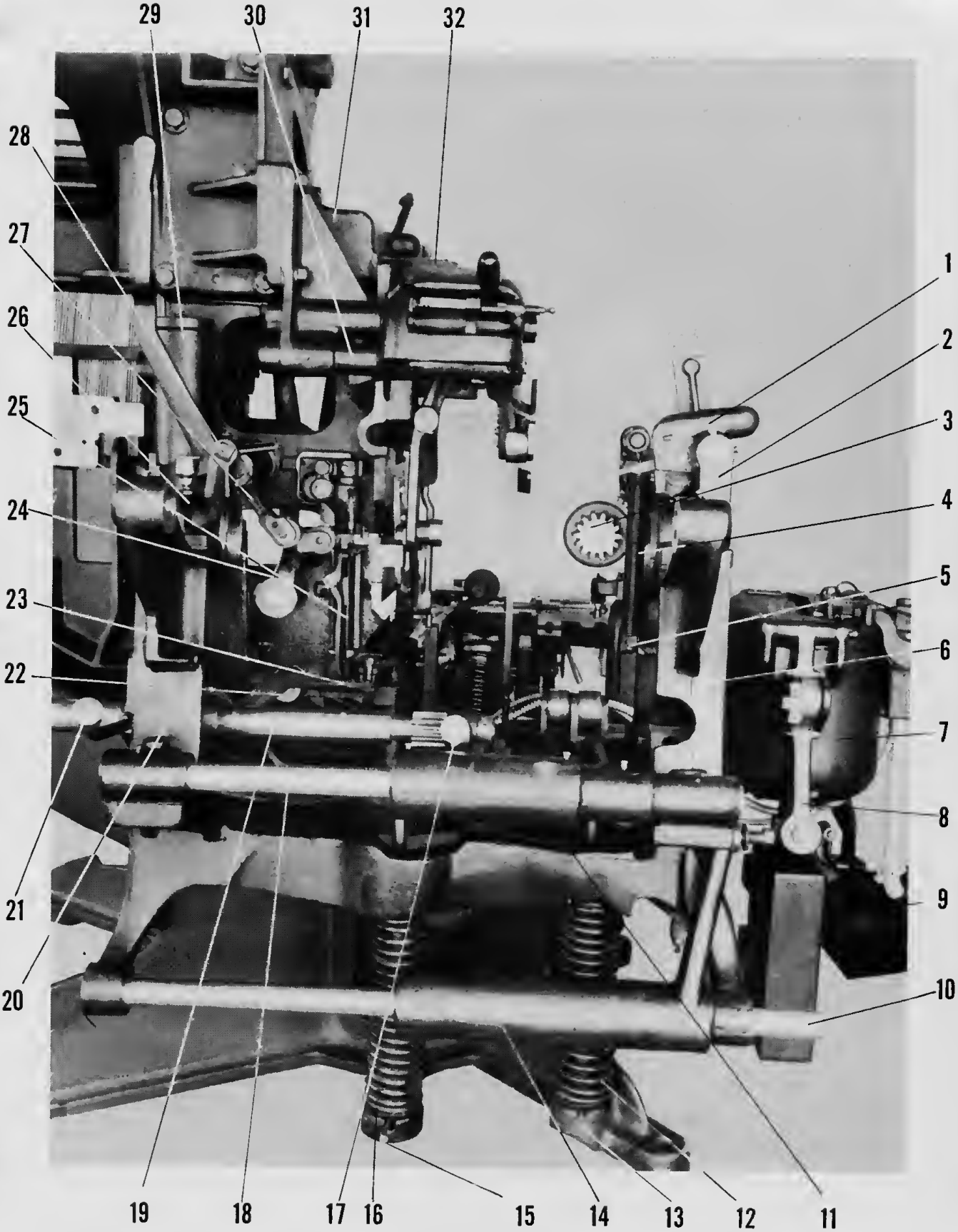
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FIGURE 1

Screws as they are set at factory for correct lock-up position.

ASSEMBLE Pot Balancing Spring Base 15 (**Fig. 14**) to machine Base and place Pot Balancing Spring 9 (**Fig. 2**) in position.

CLAMP Mouthpiece Temperature Control Box 7 (**Fig. 10**) to Base.

ASSEMBLE Mold Gear Arm 2 (**Fig. 1**) to Cam Shaft Bracket (L.H.). See that set-screw in square pinion 3 is facing upwards and that Automatic Stopping Pawl is within six inches of Vertical Stopping Lever or normal Cam position when assembly is made.

SET Mold Gear Arm Support 3 (**Fig. 2**) on Base and slide forward so that upper bearing face touches finished surface on Mold Gear Arm. Screw up with fingers only, seeing that upper and lower bearing surfaces are both set square, then tighten with wrench.

ASSEMBLE Crucible Temperature Control Relay and Switch Box 9 (**Fig. 1**) to Mold Gear Arm 2.

ASSEMBLE First Elevator Lever 14 (**Fig. 1**) and Ejector Lever 7 (**Fig. 3**) by inserting Shaft through lower rear bearings of Base.

ASSEMBLE Second Elevator Lever 8 (**Fig. 3**) and Cam Lever 2 by inserting Shaft through upper rear bearings in Cam Shaft Brackets; assemble adjusting Spring and Bolt 3 to Second Elevator Lever and to Cam Lever.

ASSEMBLE Second Elevator Safety Pawl 6 (**Fig. 3**) to Cam Shaft Bracket (R.H.).

ASSEMBLE Second Elevator Starting Spring and Bolt 4 (Fig. 3) by inserting lower end through hole in Cam Shaft Bracket (L.H.) and secure to Second Elevator Cam Lever 2. Second Elevator Lever 8 should be down in transfer position to facilitate assembly of Spring.

ASSEMBLE Spring Hook 35 (**Fig. 2**) to Vise Frame and attach Vise Balance Spring 38 to Pot Balance Spring Base and to Spring Hook.

ASSEMBLE First Elevator Cam to left-hand end of Cam Shaft, and Auxiliary Lever to lower Shaft 10 (**Fig. 1**).

ASSEMBLE Intermediate Shaft Bushing Bracket 6 (**Fig. 14**) to Column as shown at 25 (**Fig. 6**).

ASSEMBLE Distributor Bracket Support 17 (**Fig. 6**) to right-hand surface of Magazine Elevating Shaft Bracket Support Bracket.

ASSEMBLE Distributor Bracket 31 (**Fig. 6**) to Column and to Distributor Bracket Support.

ASSEMBLE Pot Pump Bracket 32 (**Fig. 1**) to Column.

ASSEMBLE Pot Pump Bracket Support Bracket 31 (**Fig. 1**) to Distributor Bracket, aligning it with two Shafts in Pot Pump Bracket before tightening

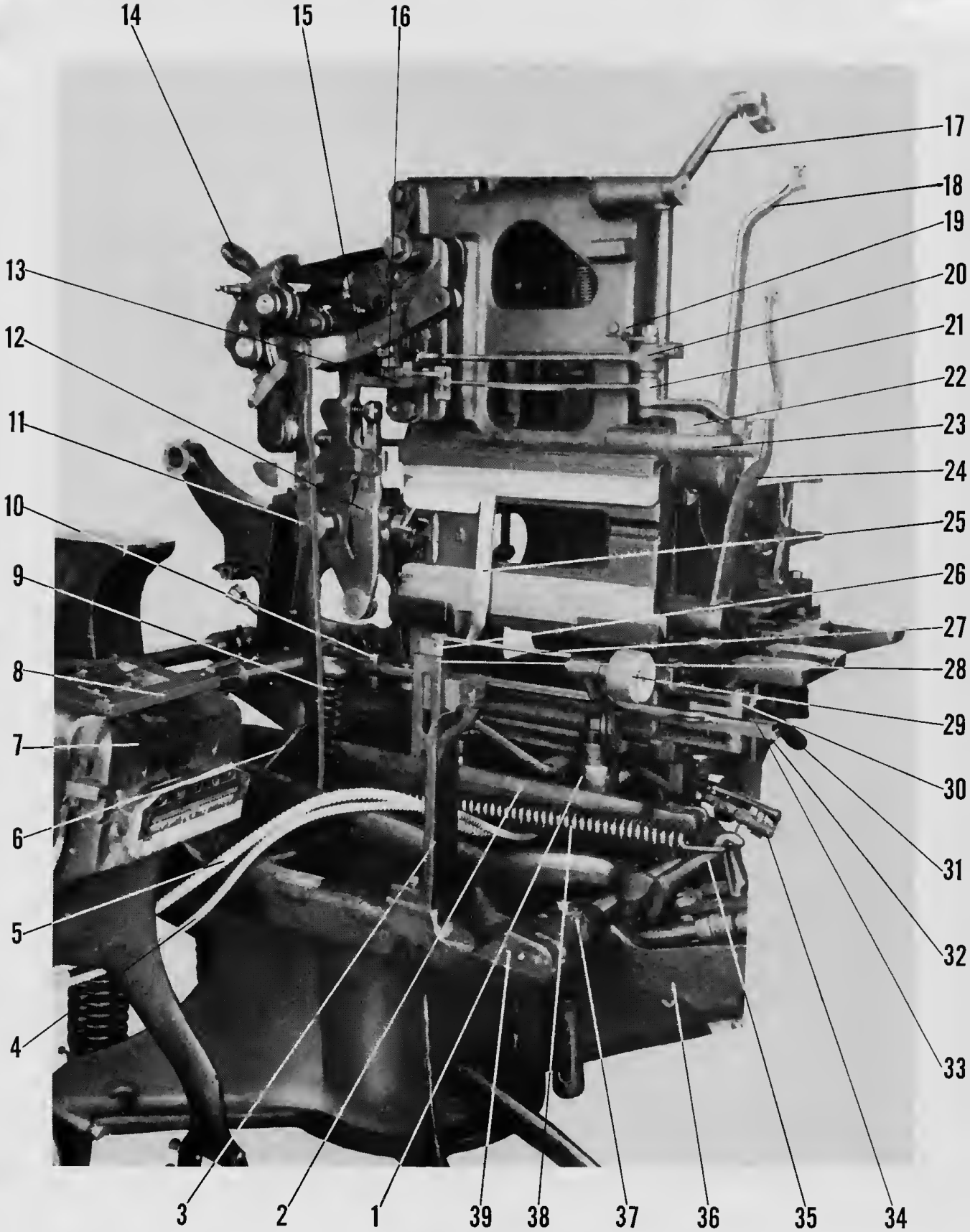
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FIGURE 2

screws.

ASSEMBLE Pot Pump Lever 15 (**Fig. 2**) and Pot Pump Spring Lever 30 (**Fig. 1**) to lower Shaft in Pot Pump Bracket.

ASSEMBLE Mold Cam Lever Handle 14 (**Fig. 2**) to upper Shaft in Pot Pump Bracket.

ASSEMBLE Mold Cam Lever 12 (**Fig. 2**) to Shaft in Mold Cam Lever Handle, making certain that Cam Roll is in position.

ASSEMBLE Pot Pump Lever Spring Adjusting Hook Bracket and Adjusting Hook 9 (**Fig. 5**) to Base under Column.

ATTACH Pot Pump Spring to Spring Lever 30 (**Fig. 1**) and Adjusting Hook 9 (**Fig. 5**). Turn Cams for lowest position of Spring Lever to facilitate assembling.

ASSEMBLE Pot Pump Lever Stop Lever Bracket 13 (**Fig. 2**) to Pot Pump Bracket positioning it so that there is a clearance of $\frac{1}{64}$" between Stop Levers 16 and Pot Pump Lever Catch Block. Cams should be in normal position when adjustment is made.

ASSEMBLE Operating Lever 21 (**Fig. 2**) and Pot Pump Safety Stop Lever 20 to Bracket 22 on Vise Locking Stud, and secure to Column by means of Stud Support 19.

ASSEMBLE Pot Pump Safety Stop Rod 8 (**Fig. 2**) to front top of Pot.

ASSEMBLE Distributor Shifter Lever Hub 1 (**Fig. 1**) by inserting Shaft through bearings in Mold Gear Arm 2.

ATTACH Distributor Shifter Lever Spring 4 (**Fig. 1**) to Lever Hub and to Spring Screw.

ASSEMBLE Pot Pump Lever Retaining Rod 3 (**Fig. 4**) to Pot Pump Lever and connect Spring 6 (**Fig. 2**) to Pot Balance Spring Base; then rotate Cams until there is only slight clearance 6 (**Fig. 4**) (¾" or less) between Retaining Rod Shoe 2 and Cam 8 (roller 1 should now be on high point of Cam 7); adjust Support Screw 4 until Retaining Rod 3 is just free, and lock in position with Lock Nut 5.

ASSEMBLE Vise Jaw (L.H.) Adjusting Bar 9 (**Fig. 14**) to Vise Cap as shown at 38 (**Fig. 5**).

ASSEMBLE Vise Jaw (L.H.) Wedge Bracket 23 (**Fig. 5**) to Vise Cap and to upper part of Vise Frame, connecting lower end of Wedge to Vise Closing Lever 15.

ATTACH Vise Jaw (L.H.) Wedge Spring 16 (**Fig. 5**) to Wedge Bracket Bolt and to lower end of Wedge.

ASSEMBLE Vise Automatic Stop Rod 2 (**Fig. 14**) and Spring 3 to Vise Frame.

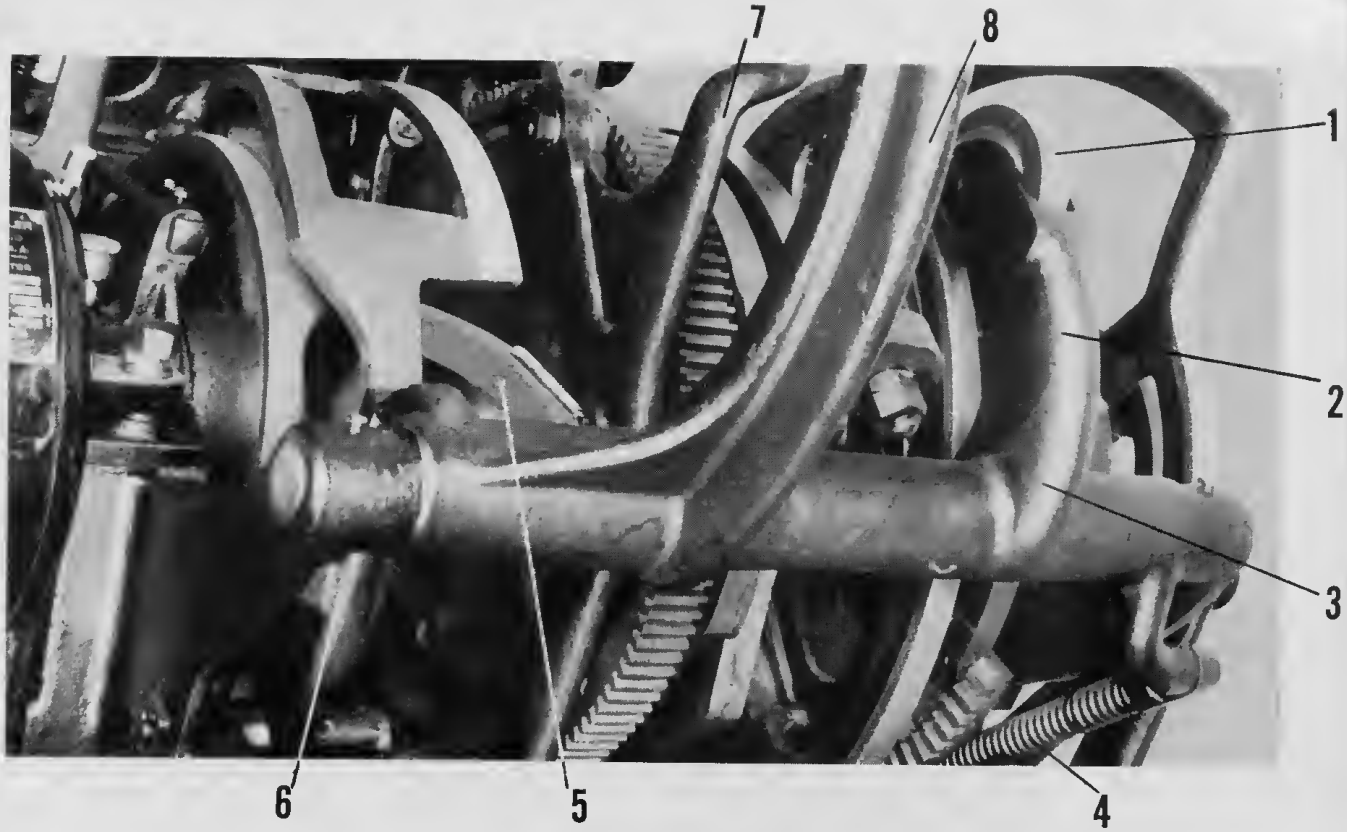

FIGURE 3

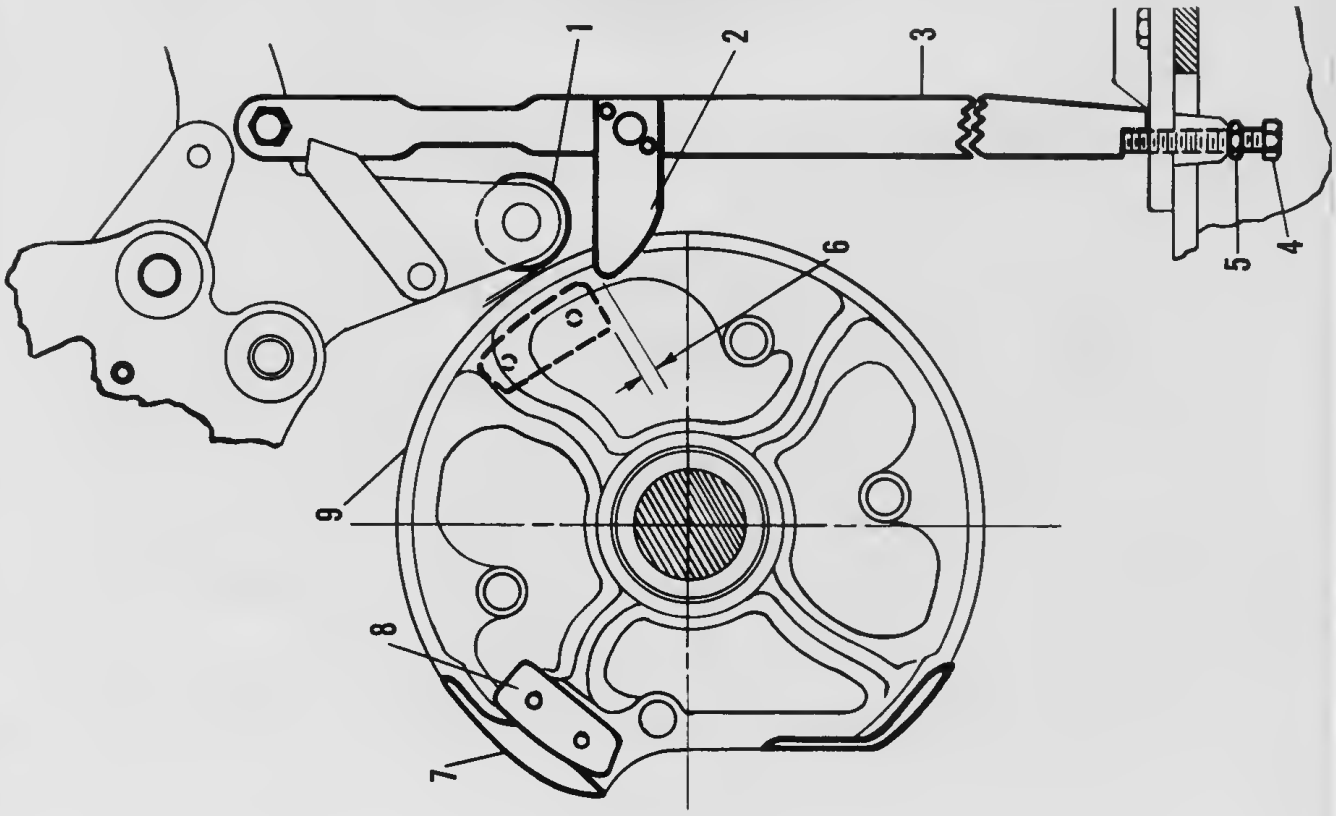

FIGURE 4

ASSEMBLE Auxiliary Line Safety Rod 12 (**Fig. 14**) and Spring to top of Vise Cap as shown at 35 (**Fig. 5**).

INSERT Mold Disk Slide into dovetail seat of Column.

REMOVE Mold Disk Stud Plate from Slide and assemble Mold Disk 20 (**Fig. 5**) to Slide; reassemble Stud Plate to Slide.

ASSEMBLE Mold Disk Guides (Upper) 22 (**Fig. 5**) and (Lower) 19 to Mold Disk Slide. Adjust Guides so that front face of Mold Disk just touches the Guides.

ASSEMBLE Mold Disk Guide Lower Lubricator 18 (**Fig. 5**) to Mold Gear Arm.

CLEAN Molds and assemble in Mold Disk.

ASSEMBLE Back Knife to Mold Disk Slide. Check Adjustment of Back Knife to back face of Molds.

INSERT Ejector Blade Controller 25 (**Fig. 2**) into Ejector Slide; assemble Link Rod 27 through Controller into Link Lift 26.

ASSEMBLE Back Mold Wiper 29 (**Fig. 2**) to left-hand front Column support boss. Adjust face of Wiper so that it rests squarely against the back of Mold Disk and is compressed ⅛″ when the Mold Slide is in normal position.

ASSEMBLE Ejector Lever Link 5 (**Fig. 3**) by inserting in rear of Ejector Slide and hooking on Ejector Lever 7.

ASSEMBLE Mold Disk Slide Safety Stop Link 4 (**Fig. 14**) and Bracket 5 to upper Mold Disk Guide 22 (**Fig. 5**) and to Mold Gear Arm.

ASSEMBLE Mold Disk Pinion 21 (**Fig. 5**) to Mold Turning Shaft.

ASSEMBLE Stationary Front Guide Holder Bracket (L.H.) 5 (**Fig. 11**) to Column.

ASSEMBLE Magazine Elevating Shaft Pawl Lever Rod Lever 9 (**Fig. 7**) Stop Lever 8 and Shaft 2 by inserting Shaft into Front Guide Holder Bracket (L.H.).

ASSEMBLE Front Guide Holder Bracket (R.H.) 30 (**Fig. 6**) to Distributor Bracket and Distributor Bracket Support.

ASSEMBLE Distributor Screw Guard Lever Operating Levers 5, 6 and 7 (**Fig. 6**) to end of Shaft 2 (**Fig. 7**).

ASSEMBLE Automatic Matrix Guard Lever Link Lever Bracket 24 (**Fig. 6**) to Stationary Front Guide Holder Bracket (R.H.).

ASSEMBLE Channel Entrance Brackets (L.H.) and (R.H.) 3 (**Fig. 6**) to Distributor Bracket.

REMOVE Link Top Support 7 (**Fig. 7**) and assemble Distributor Screw Guard Lever Link 4 (**Fig. 6**) to Lever Operating Levers 7 and 2; replace Link Top Support 7 (**Fig. 7**).

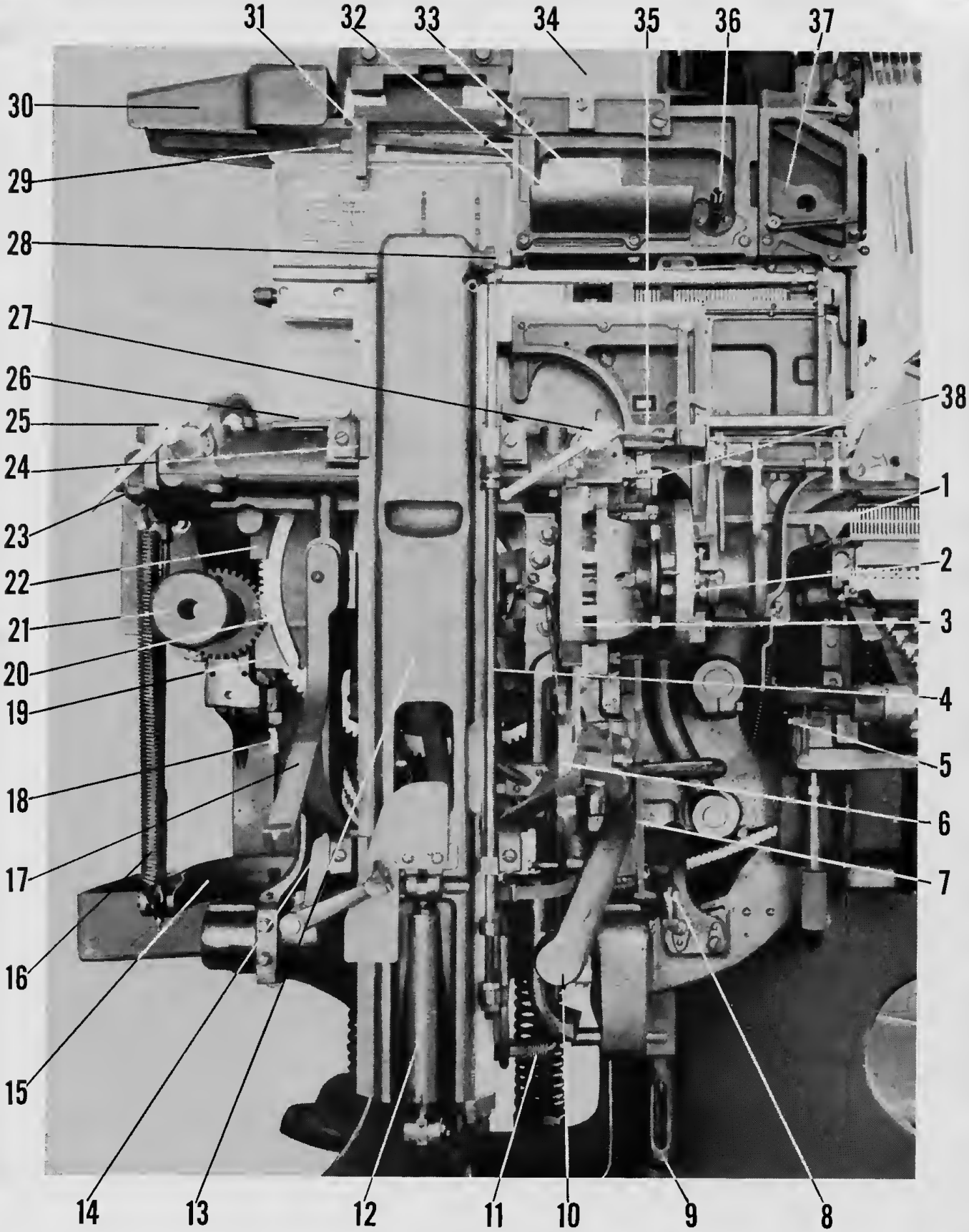
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FIGURE 5

ASSEMBLE Delivery Air Cushion Cylinder and Piston 29 (**Fig. 1**) to rear of Column and to Delivery Lever Cam Roll Arm 24.

ASSEMBLE Driving Pulley and Guard 11 (**Fig. 6**) and Driving Shaft Friction Clutch 12 to Driving Shaft.

ASSEMBLE Motor to Cam Shaft Bracket and Cap (R.H.), adjusting for proper mesh by means of screw bushings. See "Instructions to Linotype Operators and Machinists" for more detailed description of this assembly.

ASSEMBLE Gear Guard and Gear Guard Support to Motor and to Cam Shaft Bracket (R.H.).

REMOVE Elevating Shaft 19 (**Fig. 8**) from Elevating Shaft Bracket 9, and assemble Support 18 to Bracket.

ASSEMBLE Bracket and Support to Elevating Shaft Bracket Support Bracket 15 (**Fig. 8**) and assemble Tie Rod 14.

ASSEMBLE Elevating Shaft to Bracket and set timing as follows: remove Spring Drum Shaft Gear Cover 11 (**Fig. 8**) and insert Magazine Elevating Shaft 19 into Bracket 9. Allow Stop Pawl 7 to enter the first or lowest slot in Stop Shoe 6 as indicated at position A. Drilled spot 13 on the flat portion of Elevating Gear Segment 10 should line up with spot 12 on rim of Bracket 9 as shown at position B. If this condition does not exist, Elevating Shaft 19 will have to be pulled up far enough to disengage Rack 8 from Gear Segment 10 and the Segment turned sufficiently to result in the described position B when Shaft 19 is lowered into position A. Reassemble the Cover 11.

ASSEMBLE Intermediate Shaft 18 (**Fig. 6**) through bearings in the Distributor Bracket Support and Intermediate Shaft Bushing Bracket. As the Shaft is pushed through add Keyboard Driving Pulley and Belt, Assembler Driving Belt Gear and Intermediate Shaft Driving Pulley.

ASSEMBLE Keyboard Rod (Long) Frame 1 (**Fig. 7**) to Distributor Bracket Support and Intermediate Shaft Bushing Bracket, making certain that Spacer 13 (**Fig. 14**) is in position between Bushing Bracket and Frame. Fasten Frame to Stationary Front Guide Holder Brackets with Frame Brackets (R.H.) 7 (**Fig. 14**) and (L.H.) 8.

ASSEMBLE Keyboard to Base. Make certain that brass plug is in front of set screw so as to protect threads on pivot screw 9 (**Fig. 10**).

DRIVE Keyboard Locking Screw 12 (**Fig. 10**) into hole in Base and lock Keyboard in position.

ASSEMBLE Keyboard Stop 5 (**Fig. 5**) to left-hand side of Keyboard Frame.

ASSEMBLE two Copy Hooks 8 (**Fig. 10**) to Keyboard Frame.

ASSEMBLE Intermediate Shaft Bearing Grease Cup and tube 21 (**Fig. 6**)

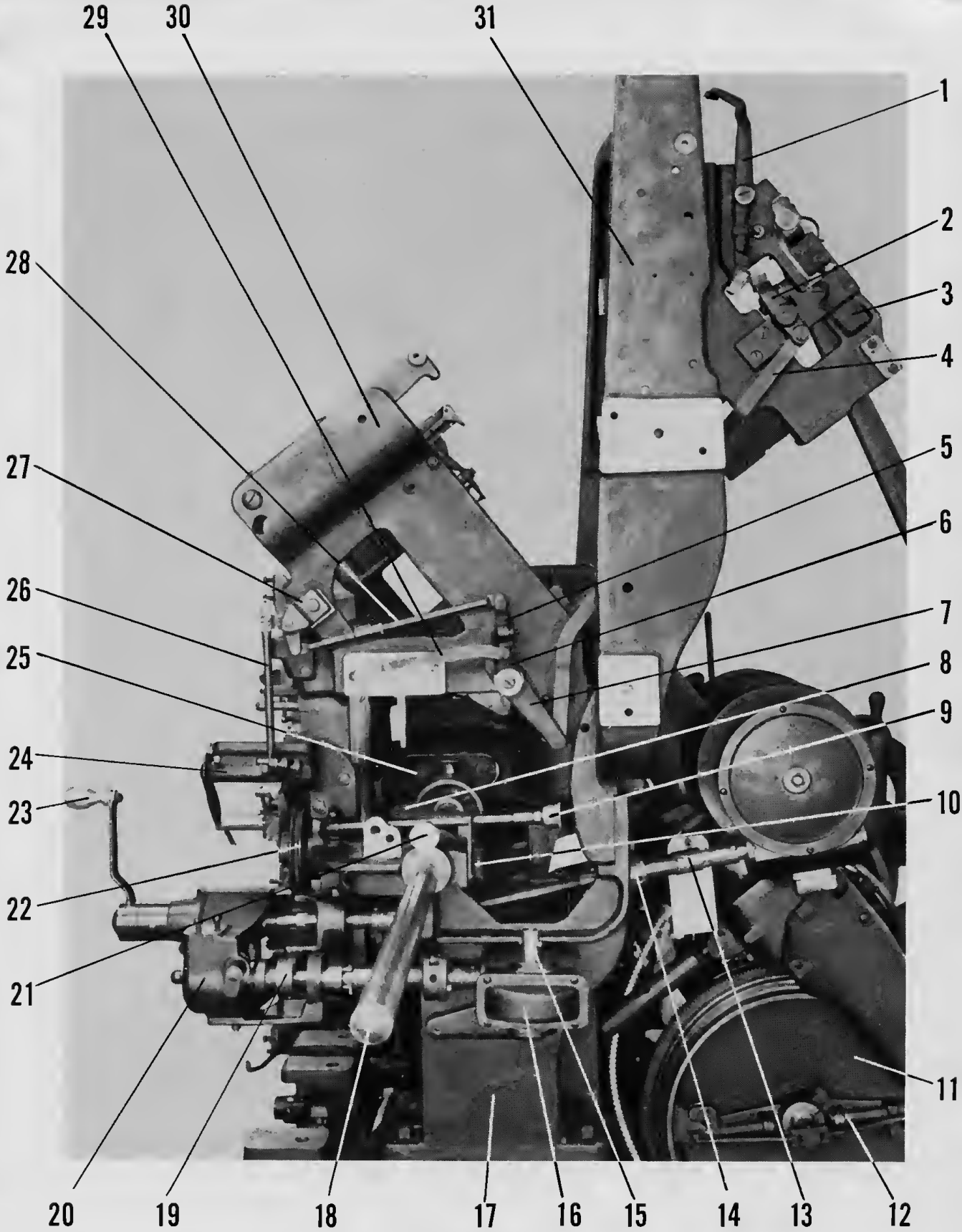
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FIGURE 6

to Distributor Bracket Support.

ASSEMBLE Assembler Driving Belt Driven Gear and Pulley 22 (**Fig. 6**) to Distributor Bracket Support.

ASSEMBLE Assembler Driving Belt Driven Gear Shaft Grease Cup and tube 9 (**Fig. 6**) to Distributor Bracket Support.

ASSEMBLE Assembler Driving Belt Gear Guard 10 (**Fig. 14**) and Plate 11 to Distributor Bracket Support as shown at 10 and 8 (**Fig. 6**).

ASSEMBLE Face Plate 13 (**Fig. 10**) to Column and Distributor Bracket Support.

ASSEMBLE Escapement Lever Guide Support 17 (**Fig. 10**) to top of Face Plate Frame, making sure that projections on Escapement Levers are properly entered in slots in Escapement Rods. Fasten Guide Support to Stationary Front Guide Holder Brackets with Support Brackets (R.H.) 19 and (L.H.) 14.

ASSEMBLE Spaceband Key Lever and Bracket 16 (**Fig. 10**) to bottom of Escapement Lever Guide Support. Insert left-hand end of Key Lever into slot of Spaceband Box Pawl Lever and connect right-hand end to Spaceband Key Rod.

ASSEMBLE Automatic Matrix Guard Operating Lever, Shaft and Bracket 27 (**Fig. 6**) to Front Guide Holder Bracket (R.H.). Connect Links 26 and 28.

ASSEMBLE Intermediate Bracket Extension 8 (**Fig. 9**) to Front Guide Holder Bracket (R.H.) and to Distributor Bracket Support. Connect Distributor Screw Guard Operating Lever (Auxiliary) Link 29 (**Fig. 6**) to Lever Operating Lever 6. Connect Automatic Matrix Guard (Auxiliary) Operating Link 23 (**Fig. 10**) to Lever 22.

ASSEMBLE Escapement (Auxiliary) Intermediate Rod Frame 4 (**Fig. 10**) to bottom of Intermediate Bracket Extension.

ASSEMBLE Magazine (Auxiliary) Elevating Drive Shaft Gear Housing 16 (**Fig. 6**) to Distributor Bracket Support.

MAKE CERTAIN that Extension Clutch 19 (**Fig. 6**) is engaged with the Lock Pin, and Handle 23 is in normal position with detent engaged as shown in (**Fig. 6**) and assemble Magazine Elevating Shaft Crank Shaft Bracket 20 to Distributor Bracket Support, at the same time connecting Magazine (Auxiliary) Elevating Drive Shaft (Horizontal) and placing Magazine Elevating Shaft Connecting Shaft and Universal Joints 13 in position between Crank Shaft Bracket and Magazine Elevating Shaft Bracket. If slots in Connecting Shaft Universal Joints do not register properly with Pins, disconnect the Coupling 14 and make necessary adjustment.

ASSEMBLE Elevating Crank Shaft Bracket Support Bracket 25 (**Fig. 10**) to

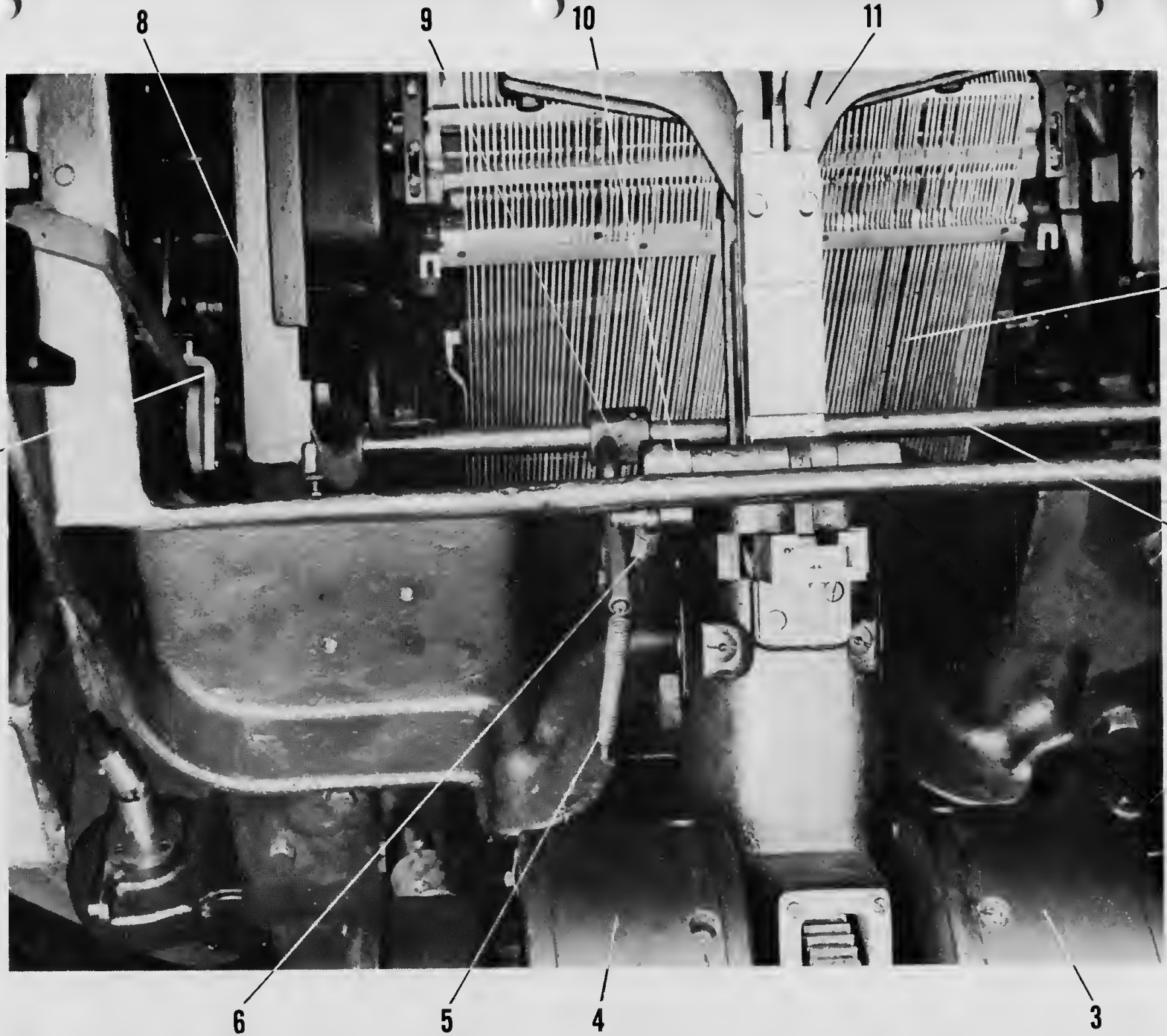


FIGURE 7

Crank Shaft Bracket 5 and Intermediate Bracket Extension. Connect Clutch Shifting Lever Link 24 to Lever 22.

ASSEMBLE Magazine (Auxiliary) Support 2 (**Fig. 9**) to Distributor Bracket.

ASSEMBLE Magazine (Auxiliary) Support Brace 7 (**Fig. 9**) to Base, Intermediate Bracket Extension 8 and to Magazine (Auxiliary) Support 2.

ASSEMBLE Magazine (Auxiliary) Frame Guide Bracket (L.H.) 21 (**Fig. 10**) to Magazine (Auxiliary) Support.

ASSEMBLE Magazine (Auxiliary) Elevating Drive Shaft (Vertical) and Universal Joints 13 (**Fig. 12**) to Magazine (Auxiliary) Frame Supporting Frame 3 (**Fig. 9**) and assemble Frame Supporting Frame to Magazine (Auxiliary) Support and Magazine (Auxiliary) Frame Guide Bracket (L.H.), at the same time engaging Drive Shaft (Vertical) with the Shaft 15 (**Fig. 6**) in Elevating Drive Shaft Gear Housing 16. Match spots on lower Universal Joint and Shaft 15.

ASSEMBLE Magazine (Auxiliary) Elevating Shaft Spring Balance Drum 6 (**Fig. 9**) to Frame Supporting Frame.

ASSEMBLE Magazine (Auxiliary) Frame Guide Bracket (R.H.) 20 (**Fig. 12**) to Magazine (Auxiliary) Support and to Intermediate Bracket Extension. Connect operating linkage 9, 10, 11, 13, 14, 15 and 16 (**Fig. 9**) (L.H. and R.H.) of Locating Sliding Block mechanism.

ASSEMBLE Intermediate Bracket Extension Brace 18 (**Fig. 12**) and Intermediate Shaft End Bracket to Intermediate Bracket Extension and to Magazine (Auxiliary) Support.

ASSEMBLE Distributor Driving Pulley 17 (**Fig. 12**) to end of Intermediate Shaft.

CONNECT Magazine Elevating Shaft Stop Pawl mechanism 5, 6, 9 and 10 (**Fig. 7**).

REMOVE cotter pins and tags from Drum Detents and wind Spring Drums 3 and 4 (**Fig. 7**) sufficiently to raise the Elevating Shaft 11 to its highest position to receive the Magazine Frame (Lower).

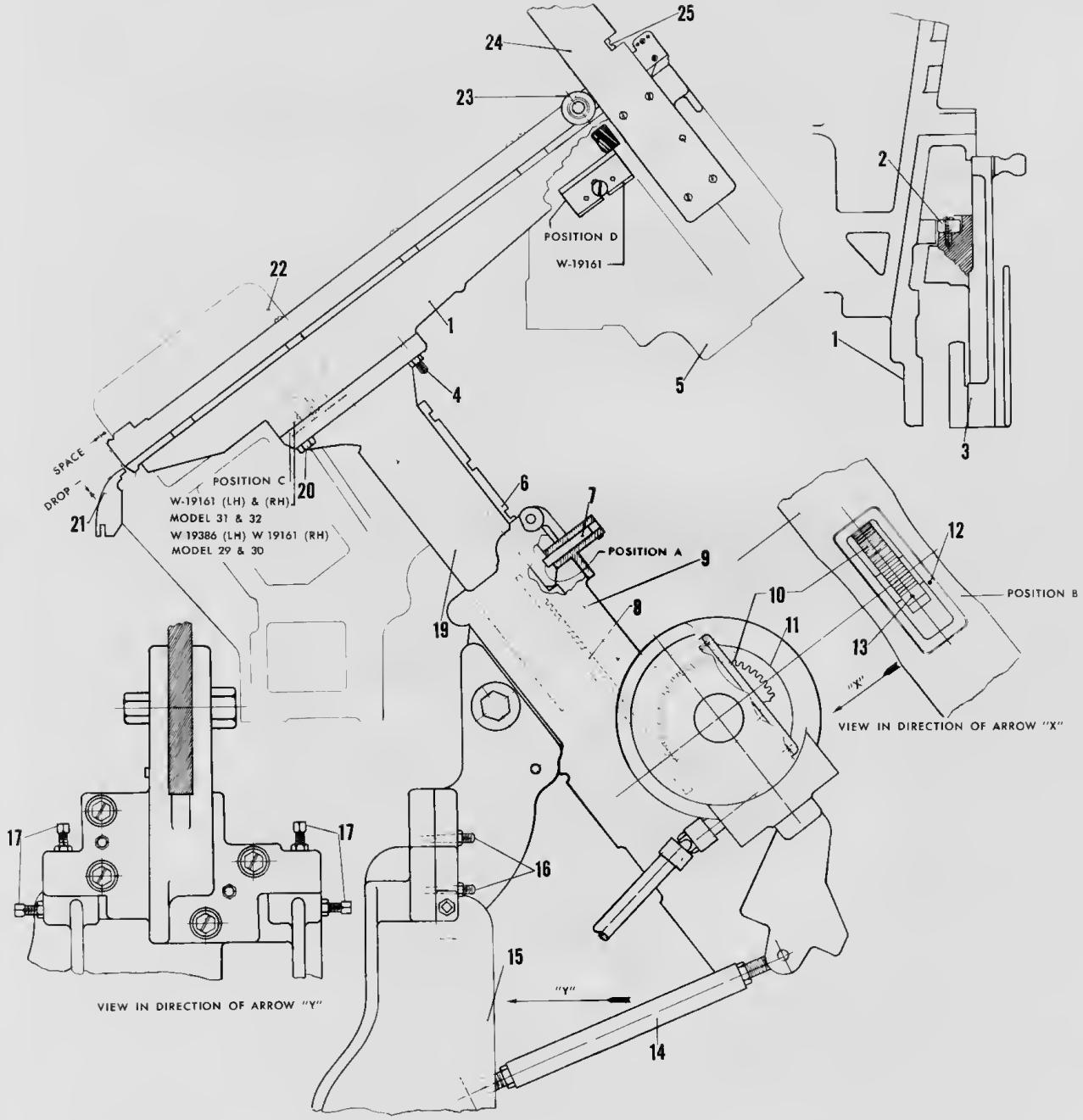
ASSEMBLE Step to machine.

ASSEMBLE Magazine Frame Guides 24 (**Fig. 8**) (R.H. and L.H.) to Magazine Frame (Lower).

ASSEMBLE Magazine Frame (Lower) 1 (**Fig. 8**) to Elevating Shaft 19.

REMOVE Magazine Frame Lower Shaft Lever (R.H.) from Lower Shaft and assemble Shaft and Handle 6 (**Fig. 11**) through bearings in Magazine Frame (Lower); replace Lever on Shaft.

ASSEMBLE Escapement to Magazine Frame (Lower).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POSITION D
W-19161
22
1
4
5
2
1
3
SPACE
DROP
21
POSITION C
W-19161 (LH) & (RH)
MODEL 31 & 32
W 19386 (LH) W 19161 (RH)
MODEL 29 & 30
20
6
7
POSITION A
9
19
8
10
11
12
13
POSITION B
"X"
VIEW IN DIRECTION OF ARROW "X"
17
17
16
15
"Y"
14
VIEW IN DIRECTION OF ARROW "Y"

FIGURE 8

ASSEMBLE Magazine Frame Guide Gib (R.H.) 17 (**Fig. 14**) to Magazine Frame Guide (R.H.) 24 (**Fig. 8**).

ASSEMBLE two intermediate and one upper Magazine Frames and their Escapements, making certain that the proper Magazine Frame Guide Adjusting Pin and Block 25 (**Fig. 8**) are in each Guide slot. These pins and blocks are tied in place and care should be taken not to dislodge them during assembly.

ASSEMBLE Magazine Frame Guide Gib (L.H.) 16 (**Fig. 14**) to Magazine Frame Guide (L.H.).

ASSEMBLE Magazine (Upper) Locking Latches (R.H. and L.H.) to Magazine Frame (Upper).

ASSEMBLE Magazine Elevating Links (Long) 3 (**Fig. 11**), (Intermediate) 1 and (Short) 2 (L.H. and R.H.) to Magazine Frame (Upper) and to Levers (L.H. and R.H.) on Lower Shaft.

ASSEMBLE Magazine Elevating Link (Short) Safety Brackets 4 (**Fig. 11**) (L.H. and R.H.) to Distributor Bracket.

ASSEMBLE four Magazines to respective Frames, winding Spring Drums for sufficient tension.

LOOSEN Lock Nuts 22 (**Fig. 12**) and turn the two rear Magazine (Auxiliary) Frame Guide Roll (Lower) Studs (L.H. and R.H.) to allow as much room as possible to facilitate assembling Magazine (Auxiliary) Frames.

ASSEMBLE Magazine (Auxiliary) Frames 12 (**Fig. 9**) to Locating Sliding Blocks 11 and 16 (R.H. and L.H.). It is necessary to have assistance to lift the Frames and carefully place them in position. This requires at least three men.

REMOVE four Guide Rolls 4 (**Fig. 9**) from Frame Supporting Frame 3.

ASSEMBLE four Elevating Racks 5 (**Fig. 9**) to Magazine (Auxiliary) Frames 12 and Frame Supporting Frame 3. Match marks on gear and on Racks. Racks are stamped so that they can be assembled in the same place as when erected in the factory.

REASSEMBLE Guide Rolls 4 (**Fig. 9**) to Frame Supporting Frame 3.

READJUST the two rear Magazine (Auxiliary) Frame Guide Rolls (Lower) (L.H. and R.H.) so that they just touch the guide; secure with Lock Nuts 22 (**Fig. 12**).

ASSEMBLE four Magazines (Auxiliary) to Frames, winding Spring Drum 6 (**Fig. 9**) for sufficient tension.

ASSEMBLE Distributor 1 (**Fig. 9**) to Distributor Bracket and Magazine (Auxiliary) Support.

ASSEMBLE Distributor Shifter Slide Latch 13 (**Fig. 11**), Back Screw Bracket Spring Catch and Distributor Screw Guard Spring to Distributor.

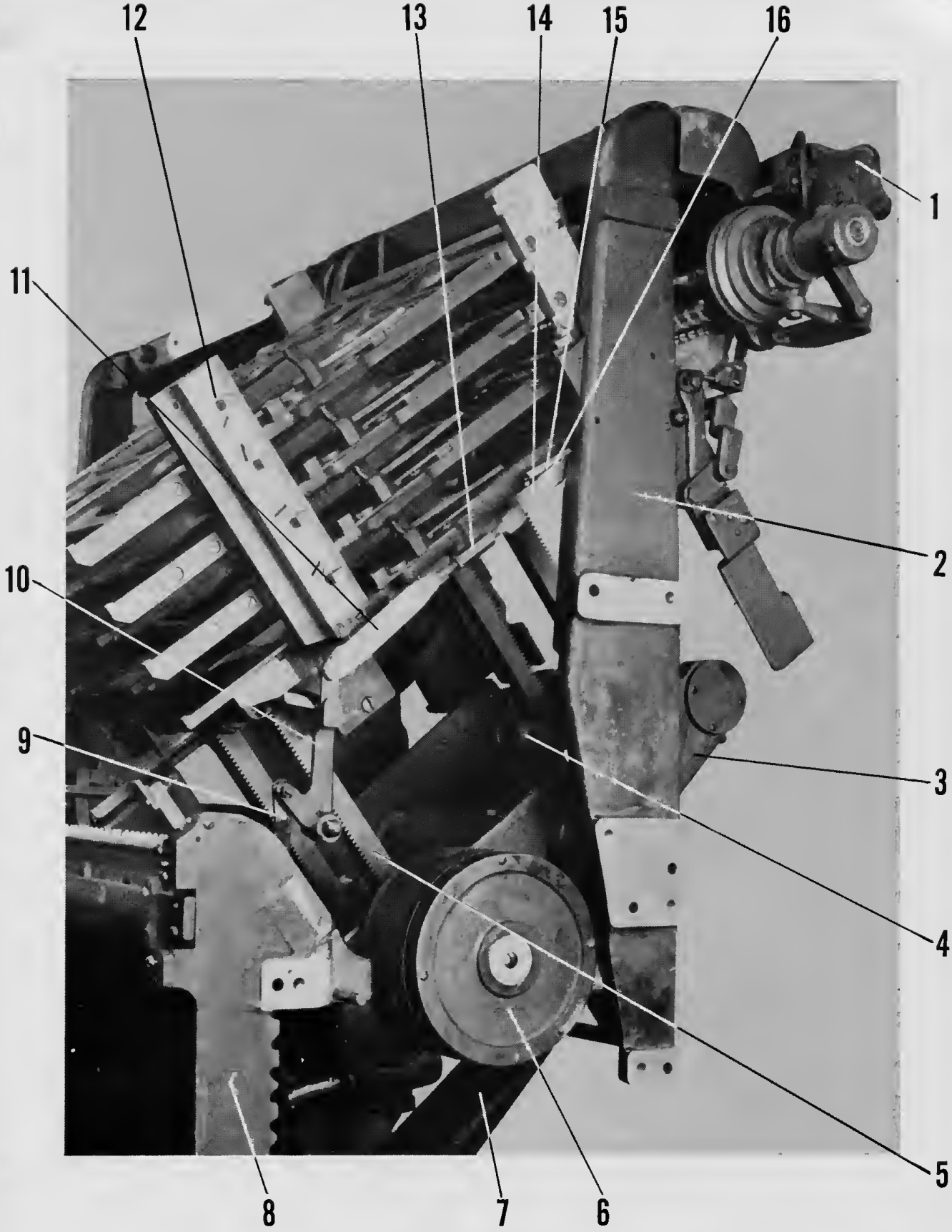

FIGURE 9

ASSEMBLE Distributor Clutch Lever and Spring 2 (**Fig. 12**) to Distributor.

ASSEMBLE Distributor Screw Guard Lever 1 (**Fig. 6**) to Channel Entrance Bracket (R.H.).

ASSEMBLE Distributor Shifter Lever 12 (**Fig. 11**) to Shifter Lever Hub 1 (**Fig. 1**).

PLACE Distributor Shifter Slide 14 (**Fig. 11**) in guide on Distributor and connect to Shifter Lever Link.

ASSEMBLE Channel Entrance (Auxiliary) Support 5 (**Fig. 12**) to Channel Entrance.

ASSEMBLE Channel Entrance 4 (**Fig. 12**) to Channel Entrance Support Brackets (R.H. and L.H.), and connect Spring to Distributor Bracket.

ASSEMBLE Channel Entrance (Auxiliary) 3 (**Fig. 12**) to Channel Entrance (Auxiliary) Brackets.

ASSEMBLE Quad Box 32 (**Fig. 5**) to Intermediate Channel Plate (Front).

ASSEMBLE Second Elevator Guide (Lower) 34 (**Fig. 5**) to Intermediate Channel Plate (Front).

ASSEMBLE Electric Light Holder Bracket 36 (**Fig. 5**) to Intermediate Channel Plate (Front).

ASSEMBLE Spaceband Buffer 1 (**Fig. 5**) to Assembler Slide Roll Bracket.

ASSEMBLE Line Delivery Link to Line Delivery Lever 24 (**Fig. 2**) and attach to Delivery Slide.

ASSEMBLE Finger 31 (**Fig. 5**) to Elevator Transfer Slide 29 and connect Slide and Link to Elevator Transfer Lever 18 (**Fig. 2**).

ASSEMBLE First Elevator Jaw Line Stop Transfer Rod Cover 30 (**Fig. 5**) to Face Plate.

ASSEMBLE First Elevator Slide 13 (**Fig. 5**) to Vise Frame and secure with Gibs 24 (L.H. and R.H.), at the same time applying Knife Wiper Bar Link 11 and Rod 4 and Galley Bracket (R.H.) 6 and (L.H.) 17.

CONNECT First Elevator Slide Link 12 (**Fig. 5**) to First Elevator Lever and check to see that First Elevator Slide aligns properly with Intermediate and Delivery Channels.

ASSEMBLE Knife Wiper Operating Lever 28 (**Fig. 5**) to First Elevator Slide.

ASSEMBLE Slug Lever 10 (**Fig. 5**) to Vise Frame.

ASSEMBLE Slug Lever Operating Arm Shaft Bracket 14 (**Fig. 5**) to Vise Frame.

CONNECT Slug Lever Link to back of Slug Lever 10 (**Fig. 5**).

ASSEMBLE First Elevator Slide Filling Piece 26 (**Fig. 5**) to Vise Cap.

CHECK Mold Slide "pull-up," Ejector Blade alignment and Mold Banking

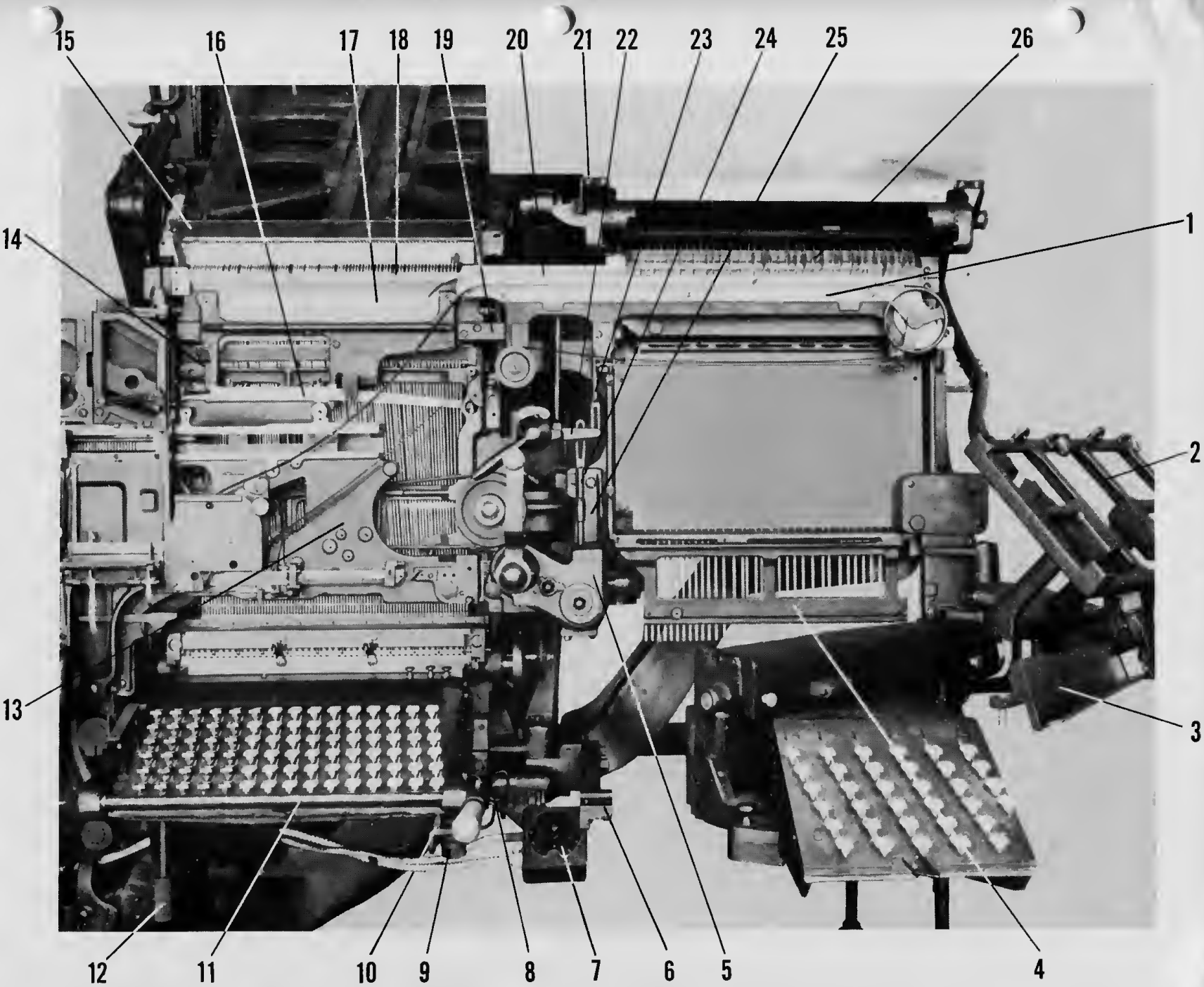

FIGURE 10

Blocks.

ASSEMBLE Knife Block 2 (**Fig. 5**) to Vise Frame.

ASSEMBLE Galley Slug Adjuster 3 (**Fig. 5**) to Vise Cap.

ASSEMBLE Ejector Blade Scale Bar 7 (**Fig. 5**) into slot in Delivery Channel Plate and connect to Ejector Controller Lever 8.

ASSEMBLE Knife Wiper Bar 1 (**Fig. 14**) to Knife Wiper Bar Link 11 (**Fig. 5**).

ASSEMBLE Distributor Box to Distributor.

ASSEMBLE Second Elevator 11 (**Fig. 11**) to Second Elevator Lever 10.

ADJUST Second Elevator Cam Roll 1 (**Fig. 3**) so that it is just free of Cam when Elevator is down in transfer position. Adjustment is made by means of Adjusting Bolt and Nuts 3. When Elevator is at upper position, the Adjusting Bolt should be free.

ASSEMBLE Automatic Matrix Guard and Supports 15 (**Fig. 10**) to Escapement Lever Guide Support 17.

ASSEMBLE Escapement Lever Cover 14 (**Fig. 14**) to back of Escapement Lever Guide Support and secure to top front of Guide Support with four Cover Clips 18 (**Fig. 10**).

ASSEMBLE Assembler Entrance 6 (**Fig. 13**), Stationary Front Guide Holder and Assembler Entrance Cover 8 to Stationary Front Guide Holder Brackets (L.H. and R.H.) and to Face Plate, adjusting sideways so that the left-hand side of Guides lines with right-hand side of Magazine Channels; add Assembler Entrance Cover Support to left-hand side of the Stationary Front Guide Holder.

ASSEMBLE Assembler Chute Finger and Spring 5 (**Fig. 13**) to Assembler Entrance.

ASSEMBLE Assembling Elevator Lever and Shaft 11 (**Fig. 10**) through front bearings of Keyboard Frame. Connect Counterbalance Spring 10 to Keyboard Frame.

ASSEMBLE Keyboard (Auxiliary) 14 (**Fig. 12**) to Supporting Bracket (R.H.) and Shaft 16.

ASSEMBLE Supporting Bracket and Shaft and Keyboard (Auxiliary) to Intermediate Bracket Extension, setting Support Base into position on floor. In screwing the adjusting coupling down into hole in Support Base, do not put too much strain on the adjusting coupling or the keyboard will not line up properly.

ASSEMBLE Keyboard (Auxiliary) Supporting Bracket (L.H.) 6 (**Fig. 10**) to Magazine (Auxiliary) Support Brace.

ASSEMBLE Pi Stacker and Bracket 3 (**Fig. 10**) to Supporting Bracket (R.H.).

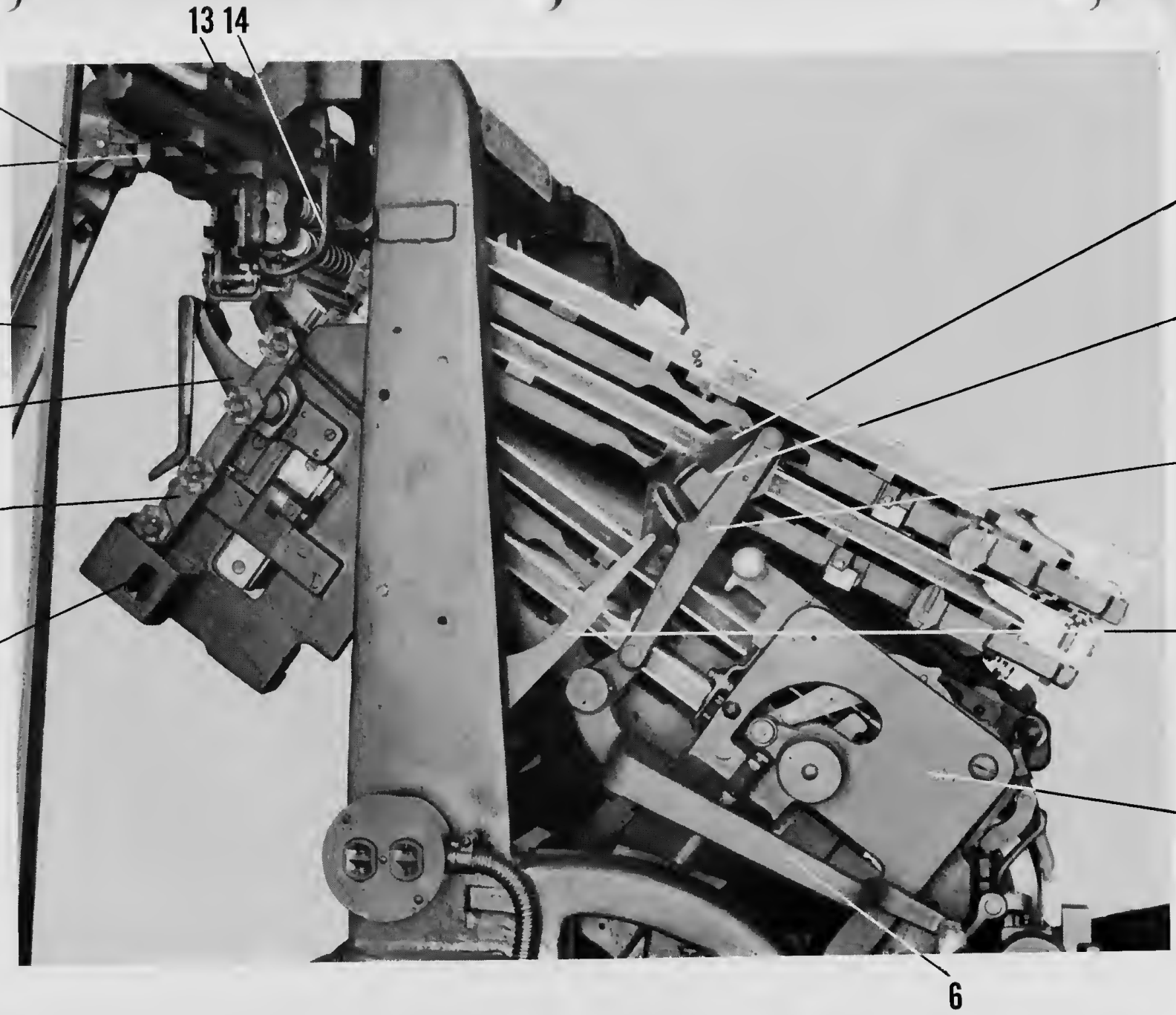

FIGURE 11

ASSEMBLE Pi Stacker Belt Guide 15 (**Fig. 12**) to Supporting Bracket.

ASSEMBLE Pi Chute (Upper) 1 (**Fig. 12**) to Channel Entrance (Auxiliary).

ASSEMBLE Pi Stacker Tube 23 (**Fig. 12**) to right-hand side of machine with three Brackets 19, 21 and 24.

ASSEMBLE Sorts Box Supporting Frame 2 (**Fig. 10**) to Pi Stacker Bracket.

ATTACH three Sorts Boxes.

ASSEMBLE Distributor Box Font Distinguisher Indicator Bracket 8 (**Fig. 11**) to Magazine Frame (Lower), and Font Distinguisher Lever and Bracket 9 to Channel Entrance Bracket (L.H.).

ASSEMBLE Matrix Tray 6 (**Fig. 12**) and Brackets (R.H.) 7 and (L.H.) 7 (**Fig. 11**) to Channel Entrance Brackets (L.H. and R.H.).

ASSEMBLE Matrix Tray (Auxiliary) 8 (**Fig. 12**) and Brackets (L.H.) 9 and (R.H.) 10 to Channel Entrance (Auxiliary) Brackets (L.H. and R.H.).

ASSEMBLE Stationary Front Guide Holder (Auxiliary) 26 (**Fig. 10**) to Intermediate Bracket Extension.

ASSEMBLE Assembler Entrance Plate (Auxiliary) 1 (**Fig. 10**) to Intermediate Bracket Extension.

ASSEMBLE Matrix Guide (Auxiliary) 20 (**Fig. 10**) to Assembler Entrance Plate (Auxiliary) 1.

ASSEMBLE Assembler Entrance Cover (Auxiliary) 10 (**Fig. 13**) to Magazine (Auxiliary) Frame Guide Brackets (L.H. and R.H.).

ATTACH Assembler Driving Belt to Pulleys.

ASSEMBLE Idler Pulley 4 (**Fig. 13**) and Tension Pulley 3 to Assembler Entrance Plate, and attach Matrix Delivery Belt 7.

REMOVE Assembler Slide Stop 2 (**Fig. 13**) from Face Plate Frame and assemble Face Plate Frame Cover and Assembler Slide Return Spring 1 to Face Plate Frame. Assemble Slide Stop to Cover and connect Return Spring to the Assembler Slide.

ASSEMBLE Automatic Matrix Guard Lever Link Lever Bracket Cover 9 (**Fig. 13**) to front of machine.

ATTACH all belts.

ASSEMBLE Magazine (Auxiliary) Elevating Pinion and Rack Guard 11 (**Fig. 12**) to Magazine (Auxiliary) Frame Supporting Frame.

ASSEMBLE Spaceband Instruction Plate 33 (**Fig. 5**) to Intermediate Channel (Back) Plate.

APPLY Metal Pan to left-hand side of Base.

HOOK UP electrical connections on Pot Heaters, Electric Light and Motor or hook up gas connections if gas heated. See "Instructions to Linotype Op-

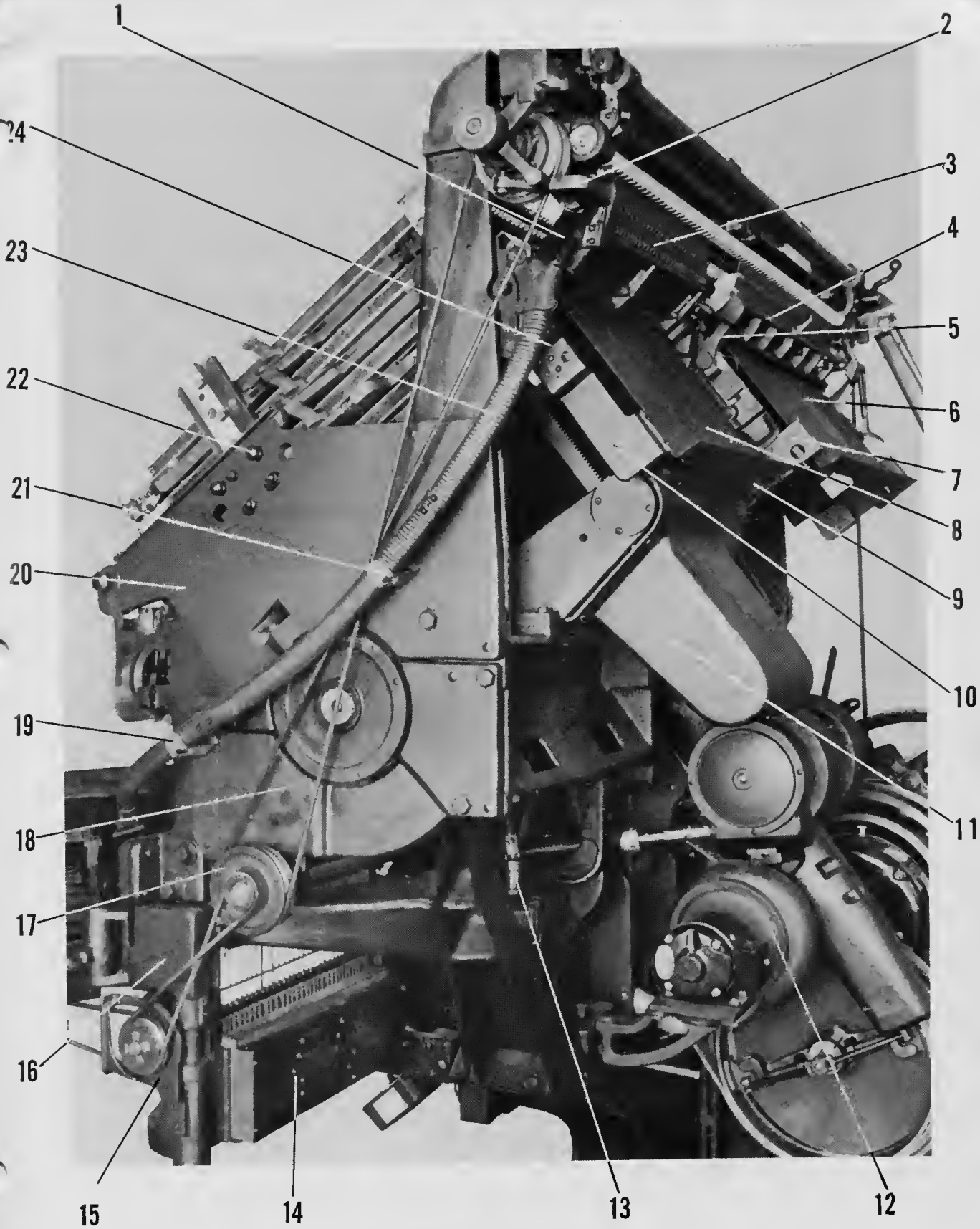

FIGURE 12

erators and Machinists" for directions.

FILL POT with metal and turn on current or gas.

REMOVE nails 13 and 15 (**Fig. 1**) and tags from Justification and Vise Closing Springs.

OIL ALL SHAFTS and rollers and other parts as indicated by oil holes and oil hole caps. Turn down all grease cups.

CHECK alignment of Distributor Box Rails to Distributor Bar and Bar Point to Rails. Also check setting of Distributor Box Lift.

SEE THAT all Distributor parts contacting matrices are thoroughly clean and clean Magazines with brush.

RUN MATRICES through Distributor into Magazines (Main and Auxiliary).

ADJUST Spring Drums for proper tension.

CHECK for "Space" (.025″ to .045″) and "Drop" (.015″ to .030″) at Delivery point of Lower Magazine (**Fig. 8**). A variation of .005″ from one side to the other is permitted. If this condition does not exist, check for correct location of lower Magazine Frame 1 (**Fig. 8**) by means of the four checking Blocks (W-19161) provided for that purpose. Use Block W-19161 on Front Guide Holder Bracket (L.H.) 22 and (R.H.) 3 as shown at position C, and on each Channel Entrance Bracket 5 as shown at position D. Match lower edges of Blocks with scribed lines on Brackets. If lower Magazine Frame 1 does not contact these Blocks within reasonable limits (.001″ to .005″), the Magazine Elevating Shaft will have to be reset. This may be done in usual manner by means of the Adjusting Screws 17 and the Turnbuckle 14.

REMOVE Guide Pins 16 (**Fig. 8**) before this adjustment is made. They need not be replaced as they are used merely as a guide in erecting the machine and serve only as an indication of the original relationship of the parts as set up in the factory.

CHECK the horizontal position of Magazine Frame 1 (**Fig. 8**) with respect to the side Adjusting Blocks (L.H.) and (R.H.) 2. The left-hand Block is pinned in place and should not be altered, while the right-hand Block 2 may be adjusted if desired.

REMOVE the four checking Blocks from left and right sides.

CHECK to see that Magazine Frame Eccentric Stud Rollers 23 (**Fig. 8**) on both left and right sides are in contact with Rails 24 when third or fourth Magazines are in operating position. The rollers may clear when the upper Magazine is in operating position.

CHECK "Space" and "Drop" of Intermediate and Upper Magazine Frames; if necessary adjust by means of Frame Guide Adjusting Pins and Blocks 25

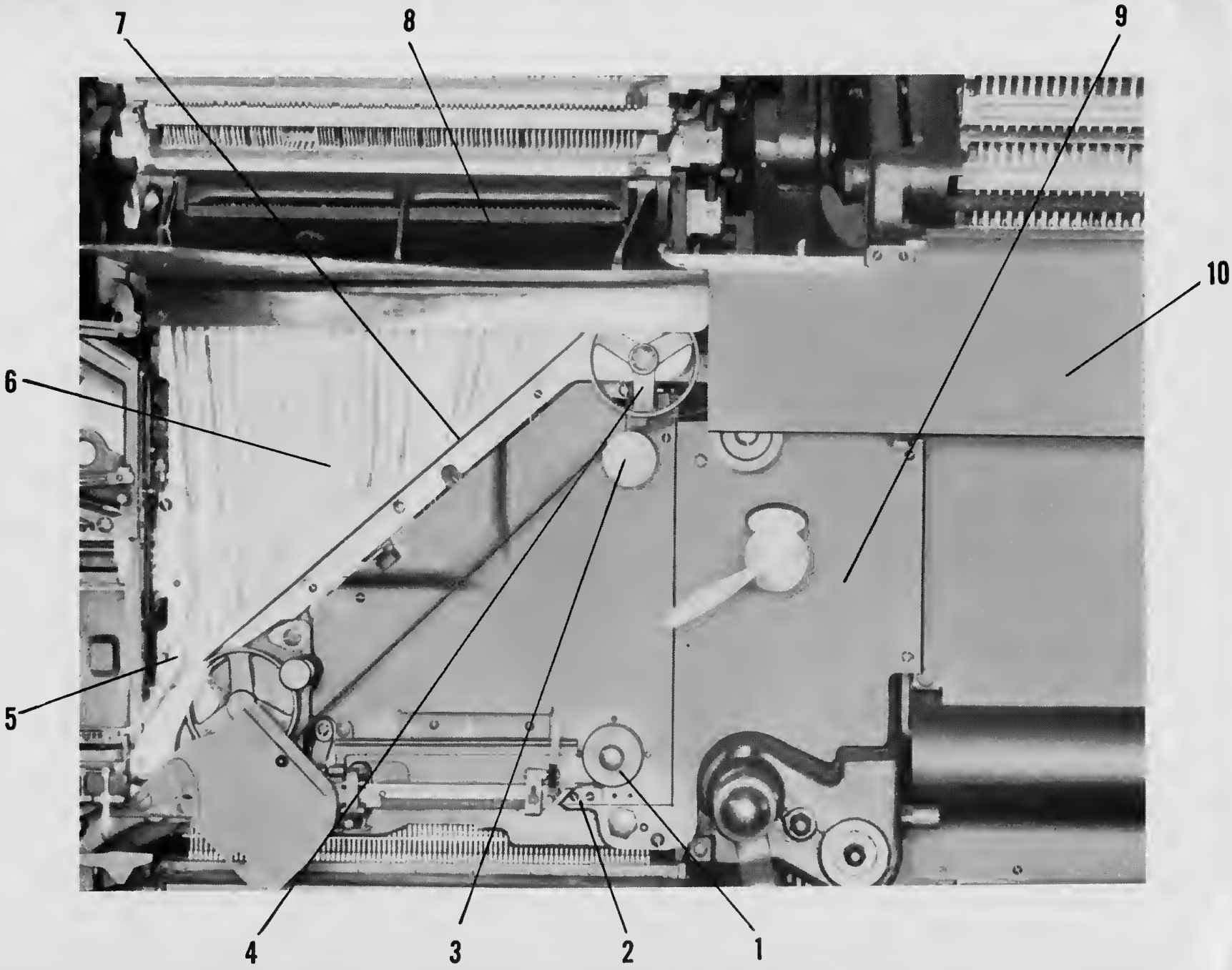

FIGURE 13

(**Fig. 8**) in Guide (L.H.) and (R.H.) 24 and Adjusting Banking Studs screwed to Frames through Escapements.

CHECK Pot Lock-up when Pot is heated sufficiently.

ARRANGE Pot Lever Spacing Washers so that Roll is central with Cam.

CHECK transfer alignment of Second Elevator Bar and First Elevator Jaw.

CHECK alignment of First Elevator Slide to Delivery Channel.

CHECK for proper height of First Elevator Slide with respect to Mold and matrices and check matrix alignment at Mold and First Elevator Jaw.

CHECK action of Vise Automatic Stop Rod.

CHECK Mold Slide adjustment (.003″ to .005″ shake).

CHECK action of Mold Slide Safety to stop machine at first and second position.

CHECK all parts that may contact matrices in their complete cycle for oil or grease.

ASSEMBLE matrices and spacebands and circulate through machine, checking all pertinent adjustments.

CHECK Pot Pump Safety (Duplex Display); adjust at point of compression. Safety Stop Lever should clear Catch Block.

CHECK action of Pot Pump Lever Stop Lever Operating Lever. Stop Lever should clear Catch Block $\frac{1}{64}$″.

INSERT Pot Pump Plunger in Pot Well and connect to Pot Pump Lever.

CAST slugs; test and make final setting of side and back knives, measuring slug for body and height. Cast in each position to make certain of side knife setting. Also check margin at ends of slug.

ASSEMBLE all remaining Guards and Covers to machine.

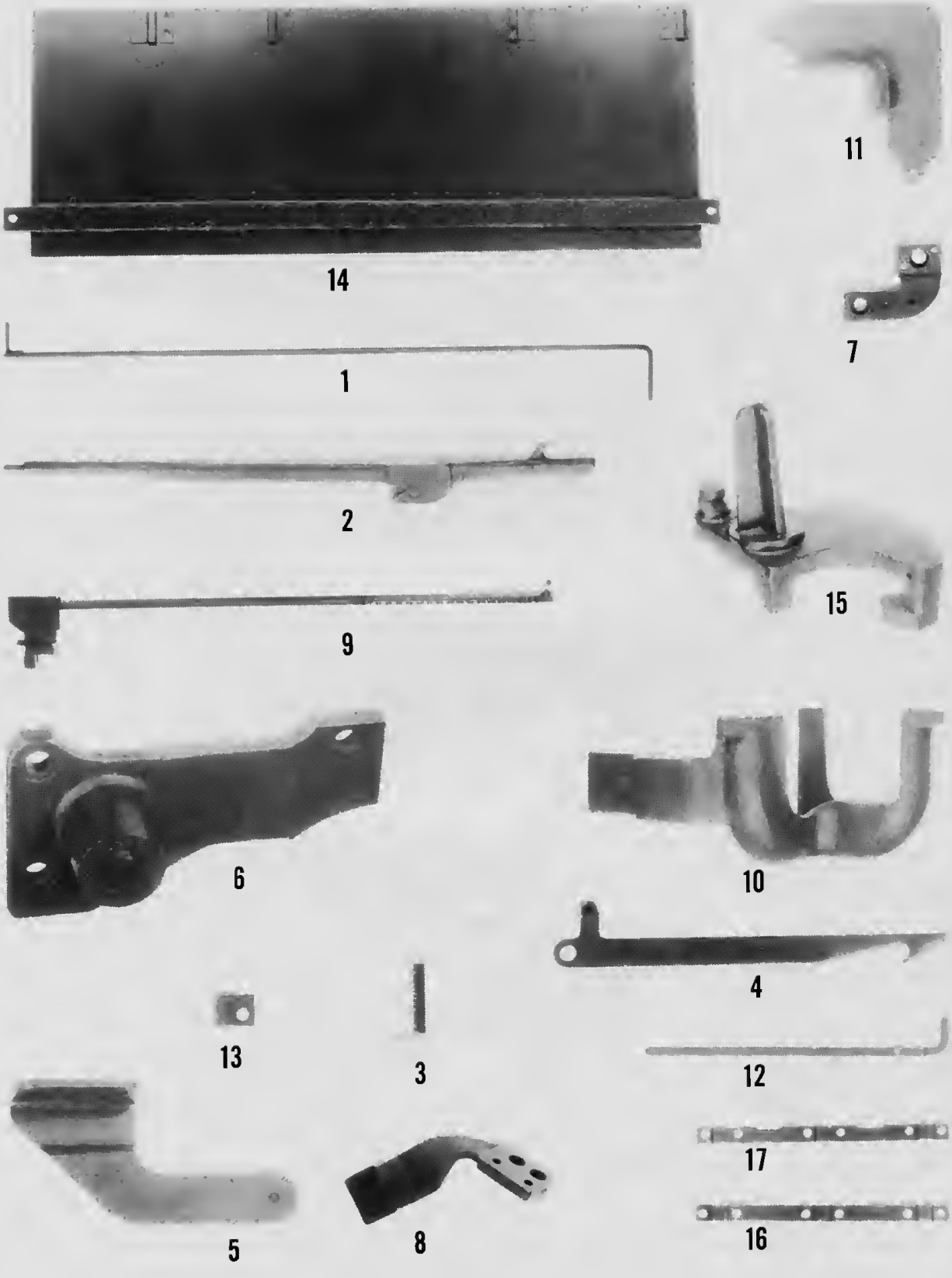

FIGURE 14

Before Putting Machine in Production

AFTER having completed the erection of your machine, it is recommended that all of the items listed on the opposite page be carefully checked. By making certain that each of the listed items are in proper adjustment, considerable time will be saved when the machine is turned over for productive operation.

When Machine Has Been Erected, Check The Following Items Before Placing Machine In Production.

- [ ] 1. Distributor, proper height, position.
- [ ] 2. Alignment of channel entrance partitions with magazines.
- [ ] 3. Alignment of channel entrance lower plate with magazines.
- [ ] 4. Relation between distributor box rails and distributor bar.
- [ ] 5. Alignment of second elevator bar and distributor box bar.
- [ ] 6. Second elevator lever roll to clear cam in transfer position.
- [ ] 7. Proper setting of distributor box lift.
- [ ] 8. Proper setting between distributor box bar point and rails.
- [ ] 9. Distributor shifter clearance while passing through distributor box.
- [ ] 10. Distributor shifter banking for pushing last thin matrix against matrix lift.
- [ ] 11. Distributor Box Matrix Guard.
- [ ] 12. Distributor Screw Guard Lever.
- [ ] 13. Distributor clutch for releasing when entrance is opened, starting when entrance is closed and for throwing off when matrices clog entrance.
- [ ] 14. Distributor front screw lower to be oiled and run freely.
- [ ] 15. Font distingulsher adjustment.
- [ ] 17. Pi matrices to distribute properly.
- [ ] 18. Keyboard, see that mats respond from each channel of each magazine and enter respective channels of mag.
- [ ] 19. Proper alignment of magazines with stationary front guides, proper space and drop between magazines and stationary front guide holder.
- [ ] 20. Elevating Cannon, horizontal and vertical adjustment.
- [ ] 21. Proper positioning of stationary front guides to allow matrices to pass to assembler freely and without hesitation.
- [ ] 22. Pivoting front set properly with upper magazines and guides.
- [ ] 26. Proper adjustment of assembler chute finger.
- [ ] 27. Tension of star wheel.
- [ ] 28. Alignment of assembling elevator gate.
- [ ] 29. Matrices to be free while assembling, tightly held upon raising elevator.
- [ ] 30. Alignment of assembling elevator to delivery channel.
- [ ] 31. Alignment of assembling elevator to delivery channel regular, and on rail.
- [ ] 32. Alignment of first elevator slide to delivery channel.
- [ ] 33. Line delivery carriage for full return.
- [ ] 34. Release of line delivery carriage.
- [ ] 35. Line deliv. carriage banking screw.
- [ ] 36. "Waiting line" in delivery channel.
- [ ] 37. Release of line delivery pawl by line delivery carriage.
- [ ] 38. Proper height of first elevator slide with respect to mold and matrices.
- [ ] 39. Matrix alignment of mold and first elevator jaw.
- [ ] 40. Vise automatic stop rod.
- [ ] 41. Mold slide adjustment (.003" to .005" shake).
- [ ] 42. Lock up of mold and mouthpiece.
- [ ] 43. Mold Slide Safety to stop machine at first and second positions.
- [ ] 44. Proper alignment of mouthpiece holes with molds.
- [ ] 45. Alignment of first elevator jaw and second elevator bar at transfer.
- [ ] 46. Duplex rail depressed at transfer.
- [ ] 47. Automatic line stop and mechanism.
- [ ] 48. Transfer slide for clearance and adjustment.
- [ ] 49. Transfer slide cam pawl.
- [ ] 50. Transfer slide releasing lever.
- [ ] 51. Action of spaceband lever pawl.
- [ ] 52. Assembler slide, brake and stop.
- [ ] 53. Spaceband release pawls and proper release of spacebands.
- [ ] 54. Proper pot and mouthpiece temp.
- [ ] 55. Slugs type high, point size parallel, margin at ends of slug.
- [ ] 56. Quality of slug.
- [ ] 57. Plunger for continuous downward travel (adjust if necessary).
- [ ] 58. Pot pump lever operating lever should clear about $\frac{1}{64}$".
- [ ] 59. Pot pump safety (duplex display), adjust at point of compression.
- [ ] 60. Mold wipers for contact.
- [ ] 61. Knife wiper must clean trimmings from knives and clear ejector blades.
- [ ] 62. Ejector blades must coincide with ejector blade indicator scale. Clearance between ejector blades and constant side of mold (.002" to .007").
- [ ] 63. Galley and slug lever, slugs must stack properly.
- [ ] 64. Vise jaw adj. rod, to slide freely, coincide with indicator pointer.
- [ ] 65. All cam rollers to turn.
- [ ] 66. Main driving clutch.
- [ ] 67. Alignment of escapement levers to escapements.
- [ ] 68. Alignment of aux. escapement levers with escapement verge plungers.
- [ ] 69. Double "e" for single and alternating action.
- [ ] 70. Adjust counterbalancing spring drums for proper tension.

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